



Office of Science
U.S. Department of Energy

*U. S. Department of Energy
and the
National Science Foundation*



MAR 13 2007

To: Mr. Daniel Lehman, Director, DOE Office of Project Assessment, SC-1.3

Subject: Request to Review the Proposed Dark Energy Survey project

The Dark Energy Survey (DES) collaboration has submitted a proposal to both the Department of Energy (DOE) and the National Science Foundation (NSF) to construct and operate an experiment to study the nature of dark energy. In 1998, it was discovered that the expansion of the universe is accelerating due to a previously unknown "dark energy". Understanding the nature of dark energy has become one of the most pressing questions in physics and astronomy. Determining its nature is a high priority science objective for the agencies. The recent Dark Energy Task Force (DETF) described the optimum intermediate- and long-term programs for dark energy investigations. The DETF report, released in July 2006, recommended that one or more mid-term experiments with a combination of techniques be done and that, in combination, they should achieve at least a factor of three gain in the DETF figure of merit over current projects. DES is a candidate to become selected as the DOE preferred alternative for a mid-term ground-based dark energy experiment.

This letter is a request that you review DES on May 1 - 3, 2007 at Fermi National Accelerator Laboratory. The purpose of this review is to assess the scientific goals and conceptual design of the entire project. The validation of the conceptual design and the cost range of the proposed DOE parts of DES are needed for DOE Critical Decision 1 (CD-1) Approval of Alternative Selection and Cost Range.

The DES experiment proposes to utilize the existing Blanco Telescope at the Cerro-Tololo Inter American Observatory (CTIO) in Chile. The construction project includes a new camera (DECam) optimized for the study of dark energy, the CTIO facilities improvement project (CFIP) upgrades and a data management system (DESDM). The DES is requesting funding for the DECam from DOE and funding for the DESDM and CFIP from NSF. Funding for CFIP would be provided through the NOAO, CTIO's parent organization. In addition, funds are being requested from other U.S. and foreign institutions.

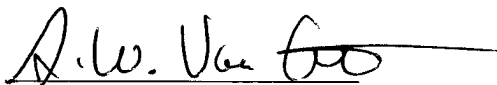
In performance of the general assessment of the science goals, project status and identification of potential issues, the committee should address the following specific items for all parts of the project:

1. Science: Are the scientific goals justified and compelling? Are the goals attainable by the planned experiment?

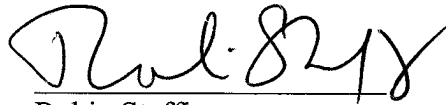
2. Technical: Do the conceptual design and associated implementation approach for each part of the experiment satisfy the performance specifications required to meet the scientific goals?
3. Cost: Is the cost estimate consistent for the project deliverables with the stated technical performance? Are the estimated costs adequately justified and supported by documentation?
4. Schedule: Is the proposed schedule reasonable and appropriate in view of the technical tasks and projected funding profiles? Are the estimated schedules adequately justified and supported by documentation?
5. Management: Are the proposed project teams identified and ready to start the next phase of the project? Do they have adequate management experience, design skills and institutional support needed?
6. Are the environmental, safety and health (ES&H) aspects being properly addressed and are the future plans sufficient given the project's current stage of development?
7. Is the DECam documentation required by DOE O 413.3A in order and ready for Approval of CD-1?

Kathleen Turner is the DOE program manager for the Dark Energy Survey and will serve as the Office of High Energy Physics contact for the review. Nigel Sharp of the NSF Division of Astronomical Sciences will serve as the NSF contact for the review.

We appreciate your assistance in this matter. As you know, these reviews play an important role in our programs. Both agencies look forward to receiving the Committee's report, within 60 days of the review.



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